

Commonwealth of Kentucky
Division for Air Quality
PERMIT STATEMENT OF BASIS

V-04-014

McKechnie Vehicle Components

Nicholasville, KY 40356

December 10, 2004

Jim Morse/Mark Labhart-Reviewers

Source Description:

McKechnie manufactures plastic wheel covers for the automotive industry. Plastic pellets are conveyed from storage silos to transfer bins. The bins feed 22 injection molding machines. The source is adding an additional injection molding machine as a result of this permitting action. After molding, the wheel covers are either painted or chrome plated. The major painting is performed in several large completely enclosed booths using robotic sprayers. Fine work such as the edge of the cover is done on the COE (Chain On Edge) Line, which also has enclosed booths. Many of the covers have a small inset detail, which is painted on the mask painting line.

There are two natural gas-fired boilers for process and space heat. Natural gas-fired ovens dry the painted hubcaps. Additionally, there is a chrome-plating process in-house, for the hubcaps that are chrome plated.

Types of control and efficiencies:

There is one regenerative thermal oxidizer (RTO) controlling Volatile Organic Compound, (VOC) emissions from the large robotic spray booths EP 10, 11 & 12. PM from these booths is controlled by water wash as well as panel filters. Particulate control efficiency is assumed to be 99%.

Exhaust filters are used to control the PM emissions from the rest of the coating operations with an assumed overall control efficiency of 90.0%.

Primary control for chrome emissions is achieved by maintaining a surface tension in the plating bath at 45 dynes/cm or less. The surface tension is regulated by the use of a fume suppressant containing a wetting agent. This parameter assures emissions do not exceed 0.01 mg/dscm (4.4×10^{-6} gr/dscf). As a secondary control a scrubber and a composite mesh pad system are used.

The latest amendment to 40 CFR 63, Subpart-N, (Federal Register / Vol. 69, No. 137 / Monday, July 19, 2004) discusses differences in the value of the surface tension when measured with a stalagmometer and a tensiometer. The EPA has assumed there is a difference of 10 dynes/cm in the measurement of surface tension when using the two instruments. Therefore the surface tension measurements required to meet the emission limit are instrument specific. The surface tension as measured with a stalagmometer will be no more than 45 dynes/cm, and the surface tension measured with a tensiometer will be no more than 35 dynes/cm.

Emission factors and their sources:

Emissions from the affected facilities were determined by engineering estimates, emission factors from AP-42 and mass balance calculations for VOCs as performed by the environmental consulting firm which prepared the permit application.

Potential emissions for individual HAPs were estimated assuming worst-case combination of coatings to give the highest predicted emission rate for each individual HAP. The SCREEN3 dispersion model was then used to compare the predicted pollutant concentrations against the EPA's Prioritized Dose-Response Values, (PDRVs). All predicted HAP concentrations were below the PDRVs.

Applicable regulation(s):

401 KAR 59:010, New process operations, applies to particulate matter emissions at each affected facility.

401 KAR 59:015, New indirect heat exchangers, applies to EP 23 and EP 32.

40 CFR 63 Subpart N-National Emission Standards for Chromium Emissions from Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks applies to EP 33a & b.

401 KAR 63:020, Potentially hazardous matter or toxic substances, applies to residual chromium emissions following application of MACT.

40 CFR 63, Subpart P-PPPP-Surface Coating of Plastic Parts and Products, will become applicable to this source during the time this permit is in effect. For an existing affected source, the compliance date is April 19, 2007. § 63.4483 (b)

This company is accepting a sourcewide VOC emission limitation of 225 tons per year in order to preclude the applicability of regulation KAR 401 51:017, Prevention of significant deterioration of air quality.

Periodic Monitoring:

Monitoring devices will continuously indicate and record the combustion chamber temperature of the thermal oxidizer. The company will conduct a performance/capture efficiency test on the oxidizer/line to establish parameters to be monitored to ensure compliance with allowable emission limits. Electronic monitoring is used to determine when to change the filters in the COE booths. Pressure drop and VOC concentrations are measured in the COE booths to determine when to change PM filters. In this case the VOC concentration used as a surrogate measurement for the total airflow.

Credible Evidence:

This permit contains provisions which require that specific test methods, monitoring or record keeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52 Section 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has not incorporated these provisions in its air quality regulations.